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☞See Advertisement on last page.

POETRY.

MY HUSBAND USES TOBACCO.

He sits in his chair from morning to night,
'Tis smoke, chew, smoke,
He rises at dawn his pipe to light,
Goes puffing and chewing with all his might,
Till the hour of sleep. 'Tis his delight
To smoke, chew, smoke.

The quid goes in when his pipe goes out,
'Tis chew, chew, chew,
Now, a cloud of smoke pours from his throat,
Then, his mouth sends a constant stream afloat,
Sufficient to carry a mill or a boat,
'Tis chew, chew, chew.

He sits all day in a smoke of fog,
'Tis puff, puff, puff,
He growls at his wife, the cat and the dog,
He covers with filth the carpet and rug,
And his only answer when I give him a jog,
Is puff, puff, puff

The house all o'er from end to end,
Is smoke, smoke, smoke;
In whatever room my way I wend,
If I take his old clothes to patch and mend,
Ungrateful perfumes will ever ascend,
Of smoke, smoke, smoke.

At home or abroad, afar or near,
'Tis smoke, chew, smoke;
His mouth is stuffed from ear to ear,
Or puffing the stump of a pipe so dear,
And his days will end, I verily fear,
In smoke, smoke, smoke.

Young ladies beware! live single indeed,
Ere you marry a man who uses "the weed;"
Better that husbands you ever should lack, O,
Than marry a "husband who uses tobacco."

CLEON AND I.

BY CHARLES MACKAY.

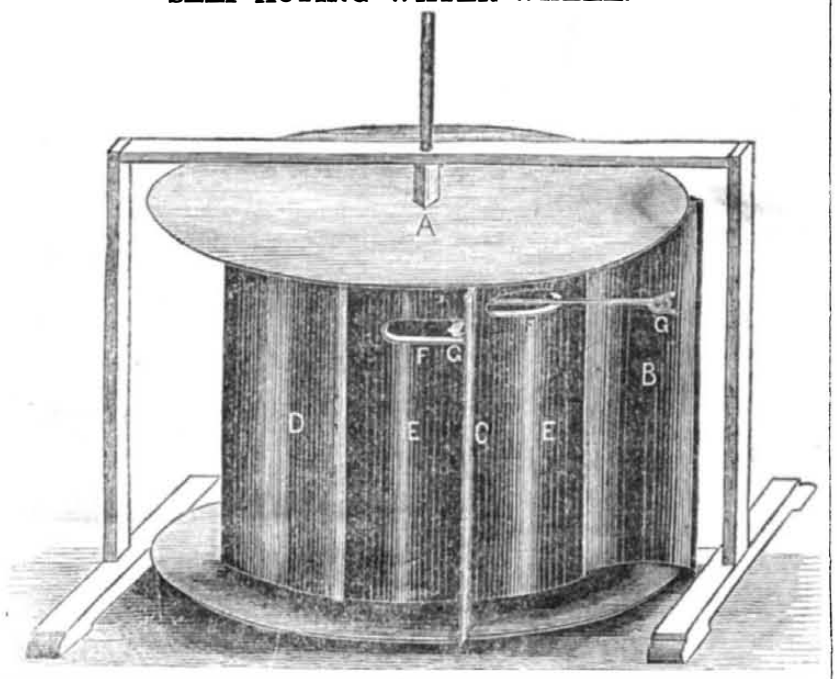
Cleon hath a million acres—
Ne'er a one have I;
Cleon dwelleth in a palace—
In a cottage I;
Cleon hath a dozen fortunes—
Not a penny I;
But the poorer of the twain, is
Cleon, and not I.

Cleon, true, possesseth acres,
But the landscape I;
Half the charms to me it yieldeth
Money cannot buy.
Cleon harbours sloth and dullness—
Freshning vigor I;
He in velvet, I in fustain,
Richer man am I.

Cleon is a slave to grandeur—
Free as thought am I,
Cleon fees a score of doctors—
Need of none have I;
Wealth-surrounded, care-environ'd,
Cleon fears to die;
Death may come, he'll find me ready—
Happier man am I.

Cleon sees no charm in Nature—
In a daisy I;
Cleon hears no anthems ringing
In the sea and sky.
Nature sings to me for ever—
Earnest listener I:
State for state, with all attendants,
Who would change?—Not I.

SELF-ACTING WATER WHEEL.

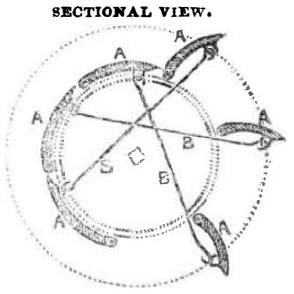


It has long been an object much desired in submerged water wheels to have the buckets so arranged that the power might be applied direct to the periphery, and at the same time have the buckets so constructed that there would be the least possible intermediate resistance in the wheel after the discharge to moving freely in the eddy formed by the wheel's action in the water. From time to time different plans have been submitted to accomplish this object and perhaps all of them justly condemned, not even excepting, as Mr. Smith said, the French Turbine. As being the source from whence the most of our talented mechanics look for the improvements and movements in the mechanical world, we therefore present a Tidal Wheel, the invention of Mr. George Newcomb, of this city, which must call attention to its adaptation and merits.

The above is a view of the whole wheel as placed for operation. A, is the shaft or axle. The light and dark vertical lines represent the buckets or rather fans of the wheel, which move in sockets closing and opening by springs as represented at G G. F F, are slots or grooves for the springs to move in. B, represents one of the fans or buckets open, and C another. E E, is the inside casing. D, represents the outside casing of the wheel, which is formed entirely of the buckets. The wheel is formed like a double circular box, the inside box being solid and the outer composed of six different bevelled fans all connected through the centres by three spring rods, which will be better explained in the sectional view. Now suppose the water to be let on and strike the bucket B, the wheel is impelled round, and supposing that it was No. 1, and each of the buckets numbered to 6—when No. 1 got to the eddy of the water in an exact line with No. 6, No. 1 would shut and No. 6 would open and so keep moving as the spring which opens the one shuts the other, or rather the one that shuts opens the other.

It will be seen that there can be very little resistance in the way the buckets are moved in their simple passage through the water, closing one and opening the other. The arch of the wheel can be built so that the correct points of closing and opening can be easily calculated.

SECTIONAL VIEW.



The A's represent the segment shaped fans, or wing buckets, like the vanes of a windmill. B B B are the spring rods which shut and open the buckets. The length of the rod extends to the outer edge of the bucket, and when there are three shut, there will be three open, or in proportion to the closing of the buckets on the one part of the periphery, so will there be a proportionate opening on the other. The spring rods which move the buckets have a groove to run in on the inside casing in proportion to the exact length of the buckets when open and the diameter of the wheel. The simple and mathematical arrangement of the buckets, their ease of motion and the great lessening of resistance to the first power, is self-evident. The pivots or journals, which move in the sockets, will undoubtedly have to be made strong, as will the spring rods, but that is an easy matter, the gain of the power by the lessening of the resistance is the main object. A patent is about to be taken out, and any person who wishes to see one in operation can have the pleasure of doing so by calling at the Croton Foundry, 59 Goerck street, N. Y.

Good for his Size.

"Why, Mr. B.," said a tall youth to a little person who was in company with a half a dozen huge men, "I protest you are so small I did not see you before." "Very likely," replied the little gentleman, "I am like a sixpence among six copper pennies—not readily perceived, but, in fact, worth all of them."

"I cannot imagine," said an alderman, "why my whiskers turn gray so much sooner than the hair on my head." "Because," observed a wag, "you have worked so much harder with your jaws than your brains."

Agreeable Conversation.

Beautiful weather—stylish air—delightful party—sweet man—fine voice—elegant figure—oh, I don't know, to be sure—why certainly—who told you? Ha-ha-ha-—he-he-he-zeph.

A Good Reason.

A statesman being asked, 'why he did not promote merit?' replied, 'because merit never promoted me.'

Why is a sharp-nosed woman like the great wall of China? Because, if crossed, you are apt to find a Tartar.

LIST OF PATENTS

ISSUED FROM THE UNITED STATES PATENT OFFICE,

For the week ending July 3d, 1847.

To James Tull and S. Norris, of Philadelphia, Pa., for improvement in Boxes for Rail Road Car Axles. Patented July 3, 1847. Ante-dated January 3, 1847.

To George Stuart of Philadelphia, Pa., for improvement in Springs for Artificial Teeth. Patented July 3, 1847.

To Frederick Emerson, of Boston, Mass. for improvement in Ventilators. Patented July 3, 1847.

DESIGNS.

To Ezra Ripley, of Troy, New York, for designs for Parlor Stove, (having assigned his right to Johnson & Co.) Patented July 3, 1847.

To John Burgess, of Troy, New York, for design for Stove, (having assigned his right to Gilbert Geer.) Patented July 3, 1847.

RE-ISSUES.

To Samuel Nicholson, of Boston, Mass., for Railroad Alarms. Patented June 26, 1841.—Re-issued July 3, 1847.

Etiquette.

The Yankee out west, who very recently wrote home to his mother that he had seen a live Hoosier, has sent her another epistle on western etiquette. Here it is:

"Western people go to their death on etiquet. You can't tell a man here that he lies, as you can down East, without fighting. A few days ago, a man was telling two of his neighbors, in my hearing, a pretty large story. Says I, 'stranger that's a whopper.' Says he, 'lay there, stranger!' and in a twinkle of an eye I found myself in a ditch, a perfect quadruped the worse for tear and wear. Upon another occasion, says I to a man I never saw before, as a woman passed him 'that isn't a specimen of your western women, is it?' Says he, 'you're afraid of the fever and ague, stranger ain't you?' Very much, says I.' 'Well,' replied he, 'that lady is my wife, and if you don't apologize in two minutes, by the honor of a gentleman, I swear, that these two pistols,' which he held cocked in his hands, shall cure you of the disorder entirely—so don't fear stranger!' So I knelt down and apologized. I admire the western country, much, but curse me if I can stand so much etiquette, it has alwas taken me unawares.

Drum Joke.

On the night of the late illumination at Cincinnati, a highly excited crowd assembled in front of the residence of a patriotic citizen, who had given out that he would exhibit a Drummond Light on the joyful occasion.—When expectation was at its highest point, a coloured man walked out with something mysterious in his hand. A loud shout from the multitude rent the air. The colored man placed upon a drygoods box a paper drum with a lighted candle stuck in the end of it, and underneath was written in large capitals, "Drum and Light." The crowd good humoredly, forgave the author, for the sake of the joke.

Clerical Plainness.

The late Rev. Dr. ———, of a certain town in Maine, an eccentric but honest minister, was once preaching on the practical virtues, and having a short time previous bought a load of wood of one of the officers of the church, and finding it fall short in measure, took this occasion to speak thus plainly upon the subject:—"Any man who will sell seven feet of wood for a cord is no Christian, whether he sits in the gallery, below, or even in the deacon's seat."

Robbing a Poetess.

While Mrs. Sigourney was addressing President Polk in Hartford, some thief entered the house and robbed her of valuable jewelry.

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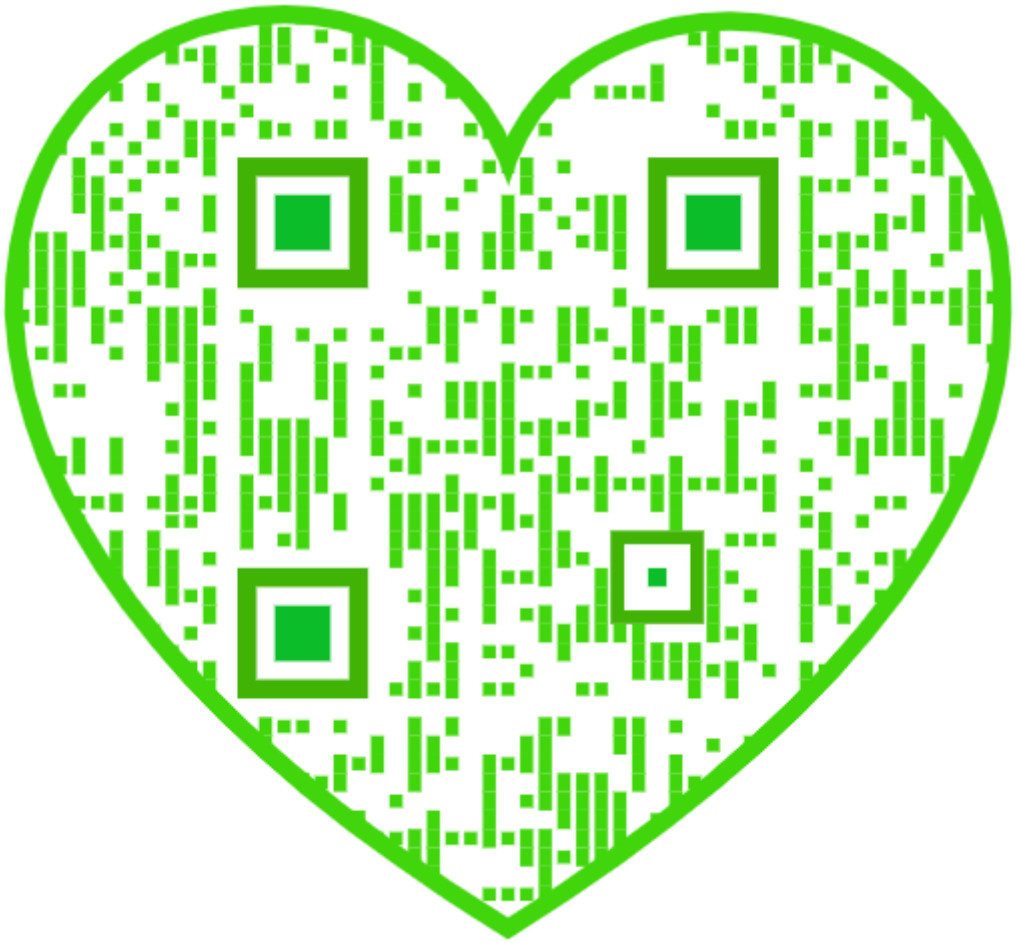

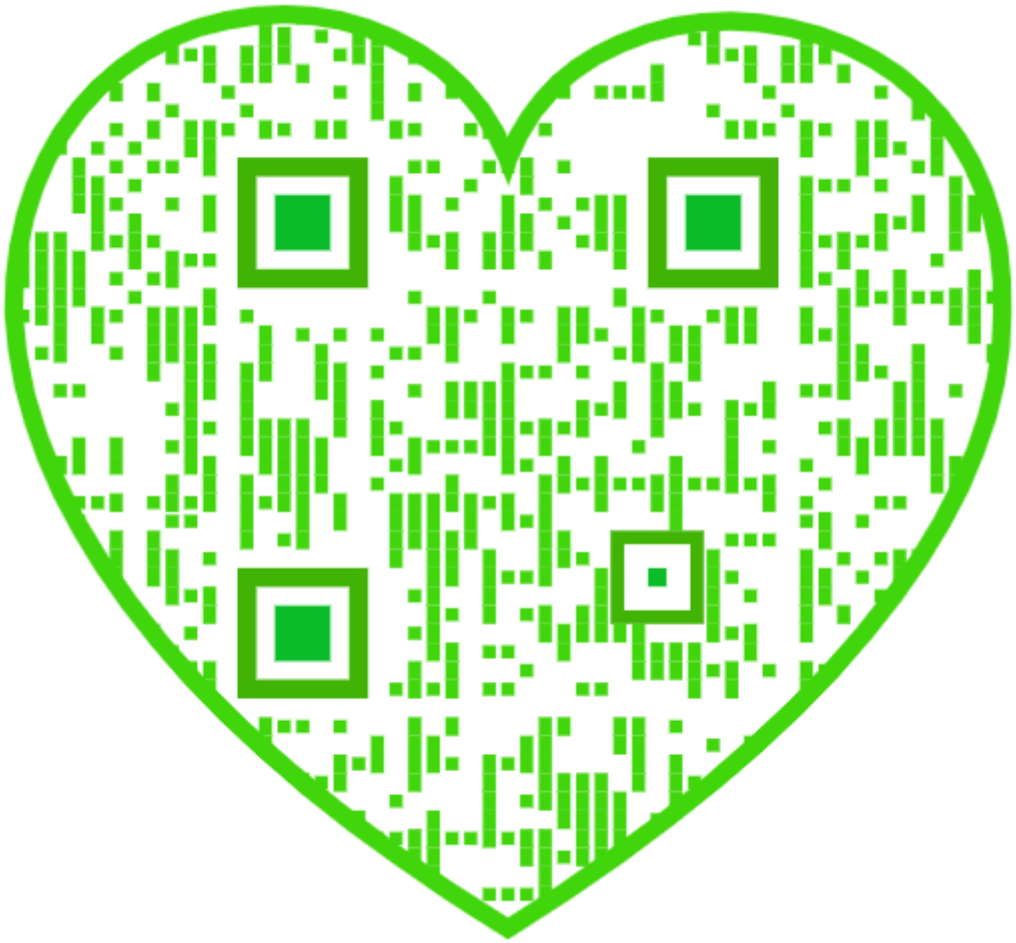

Experiment in the Telegraph Battery.

James M. Lindsey, Superintendent of the Philadelphia office of the Atlantic and Ohio Telegraph Company. Some time since finding that the line worked badly, resorted to an experiment, which has been successful. Heretofore all lines have used a ground plate connected with the battery forming a ground circuit by this means. All the lines in Philadelphia Exchange (five in number.) Mr. L. thought this might be the cause of the difficulty—and resorted to the following. He disconnected the ground plate from the battery and connected it with the roof of the building, simply by putting the end of the wire between the joint of the sheets of copper, since which time it worked well.

Mr. L. has also a solution which he uses—dispensing with the use of sulphuric acid in the battery altogether. It is used, it is said, on the Western line, and where the battery formerly had to be renewed twice a week, with this one is not renewed but once a month. The decomposition of the zinc is very slight, yet the current is as strong, if not stronger, than with the sulphuric.

The above are stated to us as facts by a correspondent, and without comment are published, we believing that some counter current has been avoided by the experiment.

Palm Leaf Hat Pressing.

We learn the following facts in relation to this part of the straw hat business.

It is but a few years since that every hat was pressed by hand with a tailor's goose. A lever was soon added to that, and the 'invention' was kept a profound secret for some time. A machine for turning the hat by a crank soon came about, and from that day to this improvements have been made. By the first process a man used to press a hundred hats in a day. In the shop we visited, ten machines, carried by water power and tended by two men and a boy, would turn off in twenty four hours nine thousand hats. They are now running day and night, by change of hands. The packing, bleaching, sorting, boxing, marking, and other operations, make a busy shop of it. Few are aware of the extent of this business. A million and a half dozens of hats are annually finished and sent to market from one little town. The splitting shops, mattress and curling shops turn out a large amount of business besides.

Ship Building in New York.

At Brown & Bell's yard there is a ship of 900 tons burden, building for the Canton trade, and a war steamer of 1000 tons for the Prussian government. At Wells' yard there are two packet ships on the stocks measuring 1200 tons each, and besides, the steam ship United States, of 1200 tons burden, for the New Orleans and Liverpool trade. At W Brown's yard there is a packet of 1000 tons burden on the stocks. At Westervelt & Mackay's yard there is on the stocks a mail steamer, to be second on the line with the Washington; also, a fine ship of 1100 tons burden, for the Liverpool line of Griswold & Co.

New Cluster of Stars.

The Cincinnatti Herald states that Professor Mitchell has discovered a new cluster of stars, one thousand in number, to which he has given the name of Becchoide. Their appearance is singular. They are of a blue tinge, and emit an unsteady light. They seem to revolve in a spiral orbit.

The Honest Way of Doing Business.

The sedate Turk is a man of few words, and seldom utters more than is strictly necessary. He sets his goods before you, names their price, and leaves you to do as you like about buying You need not think of offering him a lower bidding; he will not abate a para, and the only reply he will make will be to take back the article in question and return it to its place.

Iron Fences.

Iron fences, says the Pittsburg Gazette, are becoming common, and will soon be made cheaper than they have been in the United States. A patent has been recently secured for a cast iron fence of peculiar construction. The fence is without nails, pins or bolts of any kind, and the advantages are durability and economy This fence may be constructed as a permanent or hurdle fence, of all iron, of durability and ornament, or of part wood and part iron, or all wood and attached to the iron posts, on one and the same principle.

This is an improvement tangible and profitable, and will be appreciated by our farmers on the prairies as being one thing needful.

Glass Pens.

Wonders will never cease. Glass is now made into all sorts of things. There is cloth manufactured in England of glass, and it has even been used as the mainspring of a chronometer, and answered well for such a purpose. But for a pen to be made of glass, who would have believed it? Yet it is so, and most excellent writing pens they are. It is well known that with a flux of lead in combination with the silicon, in right proportions, that glass can be made very ductile. Those pens are now becoming not uncommon and they are perfectly apti-corrosive by the most impure ink.

How to make a Ploughman.

The young man who is desirous of becoming a ploughman in a short time should be taught day by day by an experienced ploughman to temper the irons, and guide the plough accordiug to his strength and talents. Very few young men have or are permitted to have such opportunities of learning, and the consequence is, that, as our observation confirms, the best ploughmen are generally those who have been taught directly by their fathers, and work constantly upon their fathers farms.

The Vine.

With respect to the distribution and growth of the vine, it requires, according to Meyen, at least five months of a mean heat of 59 degrees Fahrenheit to produce good wine. If September and October, the season when the grape fully ripens, have not this degree of heat the wine is sour; and a country where this is the case is therefore unsuitable to the culture of the vine.

Whitney's Rail Road

The most gigantic scheme of internal improvement ever proposed to this or any other country, is the great Oregon Railroad, destined to render the second Whitney as immortal as the first.

Fire in Manchester.

On Saturday night last the Steam Planing Mill of Mr. Daniel Friend, in Manchester, Mass., with its contents, was entirely destroyed. Probable loss, including goods in the building, about $2500. Insurance for $1200.

Soda Coffee.

The flavor of coffee may be improved by adding forty to fifty grains of carbonate of soda to each pound of roasted coffee. In addition to improving the flavor, the soda makes the coffee more healthy, as it neutralizes the acid contained in the infusion.

The way the Money goes.

The British mail steam ship Medway arrived at Havanna about the middle of last month from Vera Cruz. She had on board four and a half million of dollars in specie.

Female Labor.

Not far from $5,000,000 are yearly earned in Massachusetts by females employed in the various manufactories of straw hats, stocks, &c. About 40,000 females are thus annually employed.

Odd Fellows.

A vote to exclude from the jury box all Odd Fellows, was passed at a late town vote in Westfield, Mass.

A Mexican Trophy.

One of the Westmoreland, Pa., volunteers lately returned from Mexico; with a trophy of victory, in the shape of a live Mexican wife, with black eyes, long flowing black hair and a bewitching figure.

Curious Results of Ventillation.

In a weaving mill, near Manchester, where the ventillation was bad, the proprietor caused a fan to be mounted. The consequences soon became apparent in a curious manner.—The operatives, little remarkable for olfactory refinement, instead of thanking their employer for his attention to their comfort and health made a formal complaint to him that the ventillator had increased their appetites, and therefore entitled them to a corresponding increase of wages! By stopping the fan a part of the day the ventillation and voracity of the establishment were brought to a medium standard and complaints ceased. The operatives' wages would but just support them, but any additional demands by their stomachs could only be answered by drafts upon their banks, which were by no means in a condition to answer them.

In Edinburg a club was provided with a dinner in a well ventillated apartment, the air being perfumed as it entered, imitating in succession the fragrance of lavender and the orange flower. During dinner the members enjoyed themselves as usual, but were not a little astonished at the announcement of the provider that they had drank three times as much wine as he had usually provided Gentlemen of sober, quiet habits, who usually confined themselves to a couple of glasses, were not satisfied with less than half a bottle; others, who took half a bottle, now extended their potions to a bottle and a half. In fact, the hotel keeper was drunk dry. That gentlemen who had indulged so freely were not aware of it the time is not wonderful but that they felt no unpleasant sensations the next morning, which they did not, is quite so.

A Big Pebble.

The committee of the Jackson Monument Association invite proposals to deliver in the centre of Lafayette Square, Washington City, "a solid rude rock of granite, or other durable stone of between 600 and 1000 tons in weight—as near as may be of the latter weight." It is designed as the pedestal of said monument, and must be on the ground by the 1st day of March next.

An Egg within an Egg.

On Saturday last, Phebe Angevine, daughter of Bartholemew Angevine, of Clinton, Dutchess county, broke a hen's egg, which was found to contain another egg inside of it as large as that of a partridge, perfectly formed and having a hard shell. It was a singular case, and we presume the wisest ones in curious things will find it hard to account for it.

Cap, the Calculator.

This prodigy is a negro, and one of the greatest wonders of the age. He can calculate with ease, and without the use of a slate, any amount of numbers. He knows scarcely anything else; seems almost destitute of every faculty of mind; divides and adds numbers, from one to a million, apparently without an effort. He has been exhibited at Cincinnati lately.

A Jew shopkeeper has been fined 40s. at the London Police Office for not having his *Christian* and sirname on his door.

Wool.

The Wheeling Times says that the largest and best clips of wool grown in Ohio and Brook counties, Va., this year, have been disposed of to the Lowell agents, at 45, 50, 55, 56 and 60 cents.

Brooklyn, N. Y., is called the "city of churches," and not without good cause—there having been forty-six churches built in that city since the year 1823.

Arrival of Breadstuffs.

On Tuesday last, there arrived in this city of flour 36,824 barrels, meal 887 barrels, of wheat 40,872 bushels, corn 50,701 bushels, and rye 400 bushels.

A little more Grape.

The foundries in St. Louis are busily employed in the manufacture of bomb shells for the Government, having made since the war commenced 420 tons.

Worth of Produce.

The flour and wheat which have reached tide water by the Erie Canal during the month of May is estimated at $7,500,000.

LATE FROM MEXICO.

On the evening of the 24th ult. Gen. Cadwallader surprised a large guerilla party a few miles beyond Jalapa, and dispersed them without the loss of a single American, while the enemy lost about thirty killed and a number of prisoners.

By another rumor it is stated that Gen. Pillow's force with a large train was attacked at Calera, but the Mexicans were completely dispersed

Gen. Scott was at Puebla waiting reinforcements before he could proceed to the capital, and it was reported that there would be a greater resistance now made to his further advance than what was heretofore experienced, as the Mexicans had soncentrated a large force to oppose him, with ninety pieces of cannon.

LATE FROM EUROPE.

The splendid American steamship Washington, arrived at Southampton, England, after a passage of 14 days. Her appearance excited much curiosity, as she looked trim like a man of war.

A new steamer intended for the New York and Havana trade, named the Guadalaquiver, was to leave Liverpool on the 20th June, for New York She was to be commanded by Captain Hockin, late of the Great Britain.

Operations were about to be commenced in earnest by Mr. Bremner, the celebrated engineer, to get off the Great Britain from her situation in Dundrum Bay.

The Sarah Sands, a splendid screw steamer, left Liverpool three days before the Caledonia, which arrived last Sunday morning.

A great meeting was held in London a few days before the Caledonia left, in honor of William Caxton, the earliest English printer, a sketch of whose life is in the article, History of printing, in this and the two previous numbers of the Scientific American. Lord Morpeth was in the chair, and the American Minister, Mr. Bancroft, was present. The site selected for Caxton's monument, is Westminster Abbey. Lord Morpeth paid the United States a great compliment in his speech.

The prices of all kinds of provisions had greatly fallen, and there was every prospect of an abundant harvest in Great Britain and Ireland. The potatoe promised to do well.

Melancholy Accident.

Mr. James A. Brown, of this city, lost his life at Flushing, Long Island, on Saturday last, under circumstances of the most painful character. He had just arrived from the city, and while in the lawn in company with his young bride, amusing themselves at a swing, some careless boys in the vicinity fired a small cannon, a ball from which entered his breast, near the heart, killing him almost instantly.—He fell at the feet of his lady, whom he had that moment taken out of the swing.

Washington Monument.

Gen. Storms, as President of the Washington Monument Association, has taken possession of the plot of ground on Hamilton Square in this city, which has been given by the Corporation for the erection of the monument. The lot is about two hundred feet square and in one of the most elevated positions of the city.

The Vesper Bell.

This is the title of a new daily paper, published and edited in Albany by Messrs. Abbot, Brown & Crosby. It is neutral in politics, racy in matter, and edited with ability, as might be expected. We hope that success will ring cheerily at the sound of THE VESPER BELL.

Colonel Doniphan has arrived with his troops at St. Louis. The city authorities voted $1200 for the expenses of their public reception.

The Erie Railroad conveyed to this city last week, 291,420 quarts of milk.

The President has returned to Washington.

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LINES
Suggested by a Picture of Dr. Chalmers.

What language can express the secret grace,
That dwells upon that soul reviving face?
Or paint the gleam of spiritual light,
That makes these features so serenely bright?
With wondrous power has art's triumphant key
Unlocked the golden gates of memory;
And present to my eyes again I find
That look—a type so perfect of the mind.
Of giant strength the massive forehead tells—
Yet in that smile what gentle kindness dwells
And he whose power the noblest themes employ,
Disdains not homely phrase nor simple joy.
As, when some lofty granite cliff we view,
Piercing into the far etheral blue,
Though swept by storm, with time all worn to grey,
Yet o'er its crest the laughing sunbeams play—
The blooming wild rose in its bosom hides,
And greenest woods wave o'er its shaggy sides;
Thus, Chalmers, while thy words like thunder roll,
And burst with terror on the astonished soul,
To spots of softest green thou well didst guide,
Where streams of gentle peace for ever glide.

A Singular Idiot Bee Eater.

In a late English periodical there is the following account of this singular being:

"We had in this village (Bradbury, we believe,) more than twenty years ago, an idiot boy, whom I well remember, who from a child showed a strong propensity for bees; they were his food. his amusement, his sole object As people of this cast have seldom more than one point in view, so this lad, exerted all his few faculties on this one pursuit.

In the winter he dozed away his time, within his father's house, by the fireside in a kind of torpid state, seldom departing from the chimney corner; but in the summer he was all alert and in quest of his game in the fields, and on sunny banks. Honey-bees, humble bees and wasps wherever he found them; he had no apprehensions from their stings, but would seize them *nudis mandibus*, and at once disarm them of their weapons, and suck their bodies for the sake of their honey-bags.

Sometimes he would fill his bosom between his shirt and his skin with a number of these captives; and sometimes would confine them in bottles. He was a very merops apiaster, or bee-bird; and very injurious to men who kept bees; for he would glide into their bee-gardens and sitting down before the stools would rap with his finger on the hives, and so take the bees as they came out.

He has been known to overturn hives for the sake of honey, of which he was passionately fond. Where metheglin was making, he would linger round the tubs and vessels, begging a draught of what he called bee-wine. As he ran about he used to make a humming noise with his lips, resembling the buzzing of bees. Tbis lad was lean and sallow, and of a cadaverous complexion; and, except in his favorite pursuit, in which he was wonderfully adroit, discovered no manner of understanding.

How to destroy Fever Malaria.

Take six drachms of powdered saltpetre, and six drachms of oil of vitriol (sulphuric acid,) put the saltpetre in a tea-cup on a hot hearth or heated iron, add the oil of vitroil, a drachm at a time, and stir the mixture with a tobacco pipe. A copious discharge of nitrous acid gas will rise and fill the room, and prevent the spread of fever. Take care not to breathe the vapor when it first rises; but when diffused it causes no injury. Half the quantity is sufficient for a small room.

The chloride of lime, dissolved in warm water, with a small quantity of dilute sulphuric acid poured into it, is the best thing for destroying all noxious gases.

The Appleton and Hamilton Manufacturing Companies at Lowell, have each declared a dividend of three per cent. for the last six months, payable on demand.

Gutta Percha.

The substance known as Gutta Percha, now so extensively used in England, was first brought to notice and introduced from the East Indies, by W. Mongomery, Esq., Assistant Surgeon in the British Army. Being on duty at Singapore in 1842, he on one occasion observed in the hands of a Malay woodsman, the handle of a *parang* (wood chopper) made of a substance which appeared quite new to him. His curiosity was excited and on enquiry he found it was made of a substance called by the Malays *gutta percha*, and that it could be moulded into any form by simply dipping it into boiling water until it became heated throughout, when it became plastic as clay, and when cold regained unchanged its original hardness and rigidity, equalling, for handles of the wood choppers, spokes of either wood or buffalo horn. On making some experiments with it he found that it would be extensively useful particularly as a subst tute for caoutchouc, in many of the articles made of that substance, as it had been found that those surgical instruments made of caoutchone which had been dissolved in naptha became speedily damaged and totally useless in the damp hot climate within the tropics.

The tree producing it is one of the largest of the East Indian forests, growing to the size of three or four feet diameter. The wood is of no value as timber, but an edible concrete oil is procurable from the fruit and is often used by the natives as food. The method adopted to obtain the gutta percha was to cut down a tree, strip of the bark, collect the milky juice and pour it into a trough formed by the hollow stem of the plantain leaf. But the juice is now obtained by tapping the tree, and it may thus be made to produce in moderate quantities for years. Althongh unknown in 1842, so great had been the consumption that it is being collected at Singapore to the extent of some hundreds of tons annually. Among its first applications we notice its use in printing for the blind, for which the clear sharp impression it receives and the toughness of the substance admirably suit it, as well as in the formation of embossed maps for that unfortuuate class; and also for stopping decayed teeth.

We will say more on this subject in some tuture number.

Diameter of the Stars.

Great diversity of opinion now exists among astronomers as to the diameter of the stars. If, says M. Arago, we should take for their discs such as they appear to the naked eye, certain stars would be 9000 of leagues in diameter—equal to 27,000 times greater diameter than the sun—and the most moderate calculations would be 1700 millions. Herschel's last calculation was that Arcturus had a diameter of nearly four millions of leagues—twelve millions of miles. If the apparent diameter of two seconds and a half, assigned by Herschel to the Goat, was real, the mass of that star must be more than fourteen millions times greater than that of our sun.—But there is no certainty in this, nor any thing to question that our sun is a star. The sublime idea in the Holy Scriptures that the Creator had made all with number, weight and measure, is follwed by Plato, who called it the geometry of the heavens. Halley, the friend of Newton, believed that all the stars were of the same magnitude—that of our sun—and that difference of distance only caused the apparent difference of size. The number of stars visible by means of a tele cope of twenty feet of focal distance may be more than five hundred millions. It is affirmed by M. Arago that there are certainly stars in the firmament whose distance from the earth is 344 and even 900 times greater than that of the stars visible to the naked eye. See what a conclusion this leads us to! It is admitted that light, with the velocity of 77,000 leagues a second, takes three years to reach us from the nearest star. And there are stars 344, and even 900 times more remote. Then there are stars whose light does not reach us until after two thousand seven hundred years—an infinity in distance as it is in numbers.

The Screw Dock, at Baltimore, gave way with a considerable crash on Monday week. It will take $25,000 to restore it to its original state.

Galvanism.

By means of the galvanic agency a variety of striking and surprising effects have been produced, some of which we have already noticed, and of which the following is a summary. Gunpowder, cotton, and other inflammable substances set on fire—charcoal has been made to burn, with a most brilliant and beautiful white flame—water has been decomposed into elementary parts—metals have been melted and set on fire—fragments of diamond, charcoal and plumbago, have been dispersed, as if they had been evaporated—platina, the hardest and heaviest of the metals, has been melted as readily as wax in the flame of a candle—the sapphire, quartz, magnesia, lime and the firmest compounds in nature, have been made to enter into fusion. Its effects on the animal system is no less surprising. When applied to a fowl or rabbit, immediately after life is extinct. It produces the most strange and violent convulsions on the nervous and muscular system, as if the vital functions were again revived, and when applied to the human body after death, the stimulus has produced the most horrible contortions and grimaces in the muscles of the head and face and the most rapid movements in the hands and feet. Numerous experiments, which have been made both on dead animals and human subjects have led to the conclusion that galvanism possesses some sanative as well as energetic influence on the action of diseased living beings. It has been found to effect cures, and to afford relief in nervous disorders. (See advertisement of Smith's Galvanic machine, in another column of this paper.) It has not only been used to cure the afflicted living, but also to resuscitate the apparently dead; and, in all cases of suspended animation from accidents or otherwise, it has been found to be a test of vitality, and the surest criterion of recent death. A celebrated medical writer on this subject, in Berlin, strongly recommends its use in rheumatism, palsies, nervous deafness. hoarseness, debility of sight, white swellings of the joints. tumors in the glands of the neck, and several other disorders. It is found that it possesses not only a stimulating power over the nerves and muscles, but also over the vital forces. Mr. Spronger, of Jenna, gives an account of his having restored the sense of hearing to 45 persons by means of this singular agent—to four of whom he also restored the sense of smelling. Galvanism has also been employed as a powerful agent for blasting rocks. At Glasgow, and several other places, its agency has been applied with great success. At one blast hundreds of tons of stones have been in a moment loosed from the rock It is found that dry sand is quite sufficient for filling the perforation in the rock where the charge is placed, and that the process is unaccompanied with the smallest degree of danger, so that, by this mode of blasting, those accidents which have so frequently happened to workmen employed in such operations may be entirely prevented. The galvanic agency enables us to account for the following among other facts:—Why porter has a different and more pleasant taste when drunk out of a pewter vessel than out of glass or earthenware,—why a silver spoon is discolored in eating eggs,—why the limbs of people under amputation are sometimes convulsed by the application of the instrument—why pure mercury is oxydised when amalgamated with tin—why works of metal which are soldered together, soon tarnish in the places where the metals are joined;—and why the copper sheathing of ships, when fastened with iron nails, is soon corroded about the place of contact. In all these cases a galvanic circle is formed which produces the effects. We have reason to believe that, in combination with the discoveries which modern chemistry is daily unfolding, the agency of this fluid will enable us to carry the arts forward to perfection, and to trace the secret causes of some of the sublimest phenomena of nature.

Carpenters Wanted.

The Toledo Blade says: "The builders here find it difficult to drive their work as fast as they wish, for want of hands. The surrounding towns have been ransacked without furnishing the needed supply. Wages are liberal and promptly paid. At this time no place on the lake shore is more healthy.

The Man who took Percussion Pills.

A few days since, a chap called at one of the drug stores in Batavia, N. Y., for the purpose of procuring a box of pills, when the following conversation took place between him and the clerk:

'Got any Percussion Pills?'

'Any *what?*'

'*Percussion* Pills.'

'No, sir.'

'Why father told me you kept them here.'

'Mistake—we have Brandeth's and various other kinds; Lee's Pills, Smith's Pills, Maffat's pills, Railroad pills, High pressure pills, Headache pills, Blue pills, Worm pills, and pills enough to physic the whole Holland purchase.'

'Well I am sartin he told me *Percussion* pills, and them's the kind I want.'

'Don't know where that kind is kept, sir. unless at the gun-smith's.'

'Where's that?'

'Just down where you see that sign hanging over the walk. I'm going along that way and will show you.'

No sooner were we inside the door than he continued:—

'Say, have you got any o' these ere Percussion pills?'

'Yes.'

'Well I want some.'

'How many?'

'Why a box; they always come in boxes, don't they?'

'No, *sir*.'

'Well, I want a box anyhow, though I don't expect to take but one dose.'

'One *what?*'

'Why a *dose*—consarn your picture, don't you know what a dose is?'

'Yes, but *folks* don't take percussion pills; they use 'em to shoot with.'

'Shoot? Well, I cal'klate they wont set me back much if they do shoot, for—'

'But it will kill you to take them.'

'I don't care a darn; the old man said them was the kind I must take, and I ain't afeard of 'em.'

'Just as you say, if you will; there's a box.'

'How much?'

'Fifty cents.'

'W-h-e-w?—Fifty thunders! Look here mister—none of your hoop-a-doodles—they don't ax but two shillings for these things anywhere else, and you can't come any of your thing-um-bobs over me no how.'

'Can't sell 'em any less.'

'Oh, you git out.'

'Not by the box—but I'll let you have half-a-dozen for sixpence; you had not better take them though, for just like as not they'll blow you up.'

'Let 'em blow; I guess father knows B from bull's foot, and he said t'was the kind, and I will swallow 'em anyhow.'

So he took the pills and left. A day or two afterwards the individual walked into the drug store and said he 'rather guessed he'd made a mistake about them pills, as they didn't operate much, but griped the all-fired-est.' What he wanted and what he meant to inquire for, was a box of 'Chase's Resurrection pills,' as they are called, but by mistake got *percussion* into his head, and stuck to it like a good fellow.

Immigration Via Quebec.

We reported nearly 30,000 settlers as having arrived from Europe this season, up to 21st inst. Add about a thousand, say to the 24th, and 16,346 more, who sailed from Limerick, Liverpool, Waterford, Belfast, Dublin, Londonderry, Cork, London, Greenock, Plymouth and Sligo, between the 19th of May and 4th inst. and we have 47,000 added and about to be added to the people of America, by this highway of nature.

Beautiful Carriage.

We understand from the Cayuga New Era, that Messrs. J. & G. Clapp, of Auburn, most excellent mechanics, have lately finished a new carriage, which fairly excels in beauty and solidity any other carriage manufactured in that place.

Suffrage Question.

The Legislature of Connecticut have voted to submit the question of giving the colored men of that state the rights of suffrage, to the people.

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NEW INVENTIONS.

New and Important Hydraulic Invention

A patent has been taken out for a new hydraulic machine, by Daniel Winder, Esq. of Hagerstown, Md., which appears to surpass all other machines of this nature, and promises to be of great benefit to our whole country, and especially in level districts either of cities, villages or counties. It is well known that by the natural pressure of the atmosphere, water can not be supported in a vacuum over a column 32 feet in height at the level of the sea. This limit, however, is completely broken over by Mr. Winder's apparatus, being able to throw water by artificial atmospheric pressure, to the wonderful height, Mr. Winder writes us, of no less than 100 feet, and that without shaft, pump or operative fixture of the common kind for forcing water. Mr. Winder's machine is said to be very simple in its structure and operation and costs no more than a common pump and can be fixed on the cill of a kitchen window and removed from place to place—is entirely made of metal and not subject to get out of repair, One of these is in operation at the Carollton Hotel, three miles from Baltimore, and it throws water from a well in the street to any height in the building, and from receivers above, water can be drawn by fassets in any part of the house.—We expect soon to be able to present an engraving and description of this apparatus, when a better knowledge of its combinations will be presented to our subscribers far and near. In the meantime those who wish for more information on the subject, may address them to Mr. Winder, Baltimore, Md.

Watering Streets.

Some few weeks ago, Mr. H. Sizer, of Springfield, Mass., proposed to us a plan for watering streets. We at once saw its great benefit, but also how a patent upon his principle might be avoided. We should, however, sincerely desire to see his method adopted in our city, for with an abundance of water to keep our streets continually cool and free from dust, we must say that we have very dirty and disagreeably dusty thoroughfares. Mr. Sizer's plan was to place perforated pipes at equal throwing distances in length and breadth of the streets, and to have a man to turn a cock and go along sprinkling a whole street in a few minutes, by shutting off the one hydrant and letting on the other. Our whole city might be kept one hundred per cent more comfortable in warm weather by this plan than it now is, and with the attention of only a few men —a method very superior surely, to the clumsy and inefficient method now practiced.

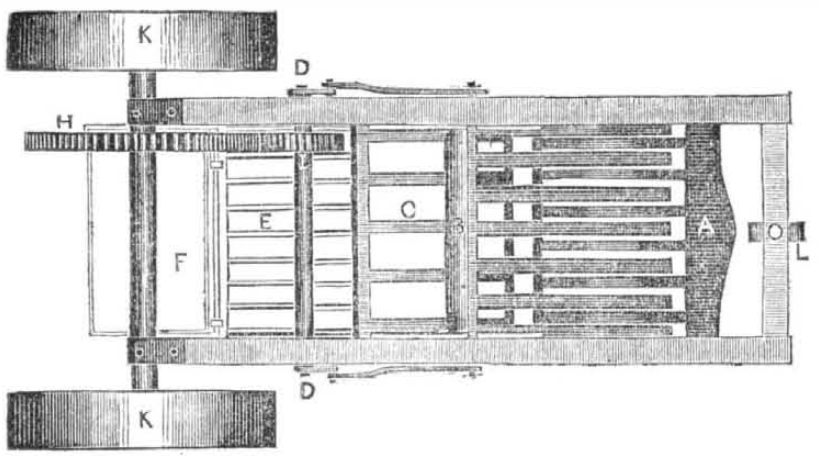
New Fleeting Bath.

Mr. Chandler Seavers, of Worcester, Mass. has invented a very portable and convenient bath, one which can be carried about in all seasons and to any place. It is the most compact and convenient bath that we have heard of. It has four hoops, one 28 inches, two 18 inches, and one 10 inches in diameter to which are fastened a curtain. The eighteen inch hoops are used, one for the top and the other for the bottom—the large hoop being used for extending the curtain in the middle, and the small one to keep the cords that suspend the curtain, apart. The top of the curtain is hung on a hook or a joist in the wall and can be easily drawn up by a cord which passes over a pulley affixed to the hook or joist. The whole sits in a common tub for common use and the pully and cord can draw up a tin reservoir perforated in the bottom, which is covered with a clapper and opened and shut at pleasure for supplying the water as wanted.—the hoops are truncated and can be easily taken apart.

Patent Roofing Felt.

Mr. H. Rowe, architect, Portland, Me., employs a substance saturated with an imperishable mineral, which renders it totally impervious to snow or frost, which is highly recommended and much used for roofing, floors, and an partition walls, as it is calculated to deaden sound and equalize the temperature, properties which it possesses in a remarkable degree. It answers all the purposes of the best lumber for outside sheathing, and is not one-third of the cost. It will retain sand and paint on its surface far superior to lumber, and can be sanded or painted in imitation of stone.

POTATOE DIGGING MACHINE.



The above is a vertical view of a machine invented by Charles Bradway, of Philadelphia, and the following description will explain the mode and principles of its construction. A is a large plough point to scoop up the hills of potatoes, which are forced up on the flat scaffold B, which is moved by the cranks D D, which shakes the soil from the potatoes and draws them up over C, on the creel frame E, at the end of which is attached underneath a bag or hopper F, and the potatoes drop cleaned of all earth into it. K K are the fixed wheels of the wagon and H is the notched wheel which moving with the whole axle turns the wheel which moves the shaft of the cranks D D The frame of the racks can be made of any width of slating, so that the potatoes may not pass through them. It is evident that from the force exerted by the horses attached to the clevice, set at the proper line or angle of draught, that from the continual draft in front the potatoes will be forced up on the racks, which are made on the principle of the inclined plane, and that the shaking of the rack by the cranks will clean the potatoes of earth and cause them to fall over the rack stage E, into the hopper F. A machine for digging potatoes on our prairies, appears to be much wanted just now, and if this machine clears itself properly of weeds and grass it will just be the very thing that is desired. The plough point is guided on the right line of depth by a heel of cast iron, which is placed at the right angle of inclination to the wheels K K. It will be observed that the dark shading exhibits the greater incline of depth while the light frame shews the more elevated part of the machine. The wheels of course are not of such a diameter as a wagon and ought to be made broad so that on soft ground they may not sink like narrow tyers. There can be no doubt but such a machine is anxiously wished for by our farmers, as digging potatoes is a slavish job, disliked, and no wonder, by them all. This machine is constructed on a principle for light soil and clear lands. Mr. Bradway has procured a patent.

Cheap Gas Apparatus.

We have learned that a novel gas apparatus has been patented in England and France, and that it is in successful operation both in London and Paris, an enormous sum having been paid to the inventor for the right to supply these two cities It is stated that letters patent have been applied for in the United States and that John Hancock, Esq. Editor of the Mirror of the Patent Office, Philadelphia, is agent for the patentee, in this country. It is said that the machine with all its fixtures, costs only about $50, and that its properties consist in generating gas in all situations whenever a fire is used and that it can be applied to kitchen ranges, stoves, parlor grates and steam engine furnaces, &c. It can be applied to Railroad stations, hotels, manufacturing establishments, workshops and private dwellings. The gas is produced at little or no expense, the apparatus being applied to a kitchen fire produces a sufficient supply of gas for any house, and it is so simple that a child can manage it. The utility of the invention consists in the combination of three desiderata in one machine, viz. that of heating rooms, heating mechanics' and other utensils, and producing gas, with an ordinary fire—accomplishing by one fire as much as it commonly takes three to produce. It is not the first time that we have seen a small gas apparatus for supplying a private dwelling with light, but never have we heard of one which combines so many advantages, as the one we have described, and we are led to think that there must surely be some drawback to its described perfection, more especially when we consider that bituminous coal is but little known among us as an article of fuel, but in those woody districts where there is plenty of hard maple and hickory we have no doubt but a simple gas apparatus could easily and profitably applied to some of our farmer's huge log fires. This opinion we formed some years ago by experiments made for the purpose of ascertaining the amount of gas in different kinds of wood.

Improvement in Oiling Journals.

There is an improvement in respect to oiling the Journals of Car Axles. It consists in an oil chamber closed on all sides, so that the journal has free access to the oil for 6 months without re-oiling. There is a flange of leather fitted to the journal and screwed to the box which leather prevents the oil from working out towards the wheel. The box is oiled from the outside and the cover has a piece of leather to make it oil tight. The name of the patentee is Mr. Times. The only objections to the plan are, that as the box wears, the leather flange on the journal may wear also, that the oil will run out towards the wheel, and that it will require more attention than men are generally capable of giving it.

The above information is derived from our worthy friend Vincent Blackburn, Superintendent of the Utica & Schenectady Railroad Machine Shop.

Improvement in Reaction Water Wheels.

The following plan is proposed by Mr. Geo. Grey, of Westfield, N. Y., for improving the power of the Reaction Wheel. The idea is original to us, and it may operate well.

"I have observed that a reaction wheel when entirely immersed in water works with about the same power and moves with the same velocity as when entirely free from backwater, the effective head being the same in both cases. It is very evident that a wheel will not move with as much freedom in water as in air, consequently the water must exert a greater force as it enters a dense body of the same fluid or comes in contact with some obstacle as it rises from the wheel. It has occurred to me that a reaction wheel constructed in the usual way with curved vanes or floats, should be surrounded by a stationary wheel composed of two rims with buckets between them radiating in a line from the centre, the outer end being somewhat curved, the water from the moveable wheel has free entrance to this wheel as it discharges from the same, filling the buckets of the stationary wheel, the water discharging from the outside of the same. The effect of this arrangement in my opinion, will tend to increase the power and the velocity of the wheel to a considerable extent."

A New Plough.

From the Carthage Casket, Tenn., we learn that a Mr. W. W. Price has invented a new plough something like the Bar Shear, but said to be far superior in every respect. Experiments have been made with the most satisfactory results, and it has met with the approbation of many farmers in that neighborhood.

Fulton's Water Steamer.

In respect to the question contained in your notice of my "plan for a new war steamer," I beg leave to state that since writing the description contained in the circular, I have abandoned the idea of heating the still by steam, which was adopted in view of the facility of regulating its operation, while the fact that the sum of the latent and sensible heat of vapor at all temperatures, is the same, was overlooked. The still may be most economically heated by the unexpended heat in its passage to the smoke stack.

My object in disseminating the plan which I propose, is to call forth the opinions of all who may think it worth criticism. I am aware that the greatest number of persons who have only thought of the principle of propelling vessels by means of jets of water in connection with the imperfect experiments that have been heretofore made, consider the question of practicability settled in the negative. For myself I feel confident that when an experiment of such magnitude shall have been made, that the whole power is not swallowed up in the friction of the pump and that of the water through the tubes, which will be the case in all small experiments, the friction through the pipes increasing, as the squares of their diameters decrease, the result will be different.

In all the experiments of which I am cognizant the pistons which impelled the water were no more than "duck feet" paddles, acting within the vessel,—in my method I propose to force the water into an air chamber, from whence it is driven through the nozzles with great velocity, and in an unbroken jet, thereby giving a greater force to a lesser quantity of water. Any one who has watched the *Libellula* dart upon its prey by the reactive force of a stream of water scarcely larger than a human hair, will pause ere he asserts that the majestic war steamer may not be driven by the impetuous torrents its engines would be capable of producing. G. W. FULTON.

Baltimore, July, 1847.

Great Improvement in Iron Manufacture.

The Newark Advertiser gives the following account of an improvement in iron manufacture, promising to be of benefit to our country:

"A worthy citizen of this place, Mr. Alexander Dickerson, has recently patented a mode of melting iron ore, and producing bloomed iron which, in the judgment of men well informed on the subject, is an improvement of the greatest importance, not only to manufacturers, but to society at large. Mr Dickerson's improvement consists in combining with a closed forge fire, a closed chamber with an opening at the top to fill in the charge of fuel and ore. The value and importance of this simple invention will be readily apprehended, when we say, as we do on the most reliable authority, that it saves half the coal and half the time required by the old method, and at the same time makes a better article—and equal to the best Russia or Swedes iron. It ordinarily takes from 300 to 350 bushels of coal to make a ton of blooms; and the old forge fire will make three tons of iron per week, by working day and night without intermission.

"The plan now introduced, it if has been proved by satisfactory experiment, would produce double the amount, in the same time, of a far better article, and at a saving of half the cost in fuel—which, when we take into account the total amount of iron manufactured in our country, would make an immense saving, beside furnishing a better quality of iron. It requires but a moment's reflection to see that this improvement is therefore a matter of national consequence and general congratulation. The use of iron is becoming every day more universal. It now enters into a great part of all the economical enterprises of society, and this simple invention, by increasing the production and lessening the cost, can scarcely fail greatly to extend the use of it—and that without depending upon a precarious tariff.

"These startling statements are satisfactorily verified by the testimony of one of the oldest and most respectable iron-masters in the Union, Col Jackson, of Morris County, and his testimony is corroborated, if corroboration be necessary, by Seth Boyden, a machinist and inventor whose opinions on these subjects have the weight and authority of demonstrations."

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NEW YORK, JULY 10, 1847.

Ventilation and Health.

"The breath of man is in his nostrils," and according to the purity or impurity of the air we inhale, so may we expect health or sickness. The Almighty has wisely designed that labor should be one grand means of health to man, and in harmony with his great plans, motion is the principle of all creation's health. The earth spins upon its axis, the sea rolls in mountainous waves and the atmosphere roars in the whirlwind. If the sea be not continually in motion, it will stagnate and the atmosphere without motion, would soon become offensive and hurtful. Inaction is one cause of atmospheric impurity and motion is one means of purification. There are also other causes which deteriorate the atmosphere and render it injurious to those who breathe it. The act of breathing throws much impurities into the atmosphere, as the air is exposed when taken into the lungs to a surface thirty times that of the human body, or 170,000,000 of minute cells in which it is decomposed and deprived of its oxygen, and then carbonic acid gas, a deadly poison, is the produce of this wonderful labaratory. It is therefore apparent to all, that unless there is a continual supply of fresh air to the lungs, a person shut up in a confined room would soon be poisoned with his own breath. A terrible instance of this kind occurred when the Nabob of Bengal thrust one hundred and forty six prisoners into the Black Hole of Calcutta, which was scarcely large enough to contain three persons, and when out of the number stated one hundred and twenty three perished before morning amid the most dreadful sufferings. It is of the first importance to health —the health of our families and citizens—that every attention should be paid to the ventillation of our houses, our streets, and our public buildings, and to have a knowledge of those things which injure the atmosphere, is just as essential for judging correctly of what ventillation we need, as to know that without inhaling the atmosphere at all, life would soon droop wither and decay. It is calculated that two candles injure the air nearly as much as a human being, absorbing the oxygen which is a supporter of combustion and expelling carbonic acid gas, the principal ingredient of wax and tallow. Fourteen gas lights will destroy as much as five men and from the pores of the skin three gallons of noxious fluid are thrown off from 250 persons in one hour, while from the decomposition of animal and vegetable matter, there is a continual stream of noxious vapor ascending and spreading.

Dirty streets, pent up sewers, stagnant and impure water and confined apartments, murder more men and women than war with all its attendant evils, for it is calculated that in England alone, more than one hundred and twenty thousand die yearly, their deaths attributed nearly direct to these causes. The direct causes of all fevers, is atmospheric impurity, and consumption and a great number of other diseases can be traced indirectly to the same source. Twenty nine died in this city of typhus fever last week, contracted somewhere in an impure atmosphere and from the same cause indirectly thirty died in the same week of consumption. There can be no doubt but that the least excess of carbonic acid gas is hurtful to the lungs, and when we take into consideration that a great number of males who have to labor in narrow confined rooms and in cellars lit up with air consuming gas, it is nothing but what we may expect to hear weekly, of 323 deaths, as were last week, and the mortality increasing even in a greater ratio as our population becomes larger, for although our wharves are lined with emigrants in the most miserable condition and coming from scenes of desperate fever, yet it is sad to tell that there is an excess of deaths by consumption over fever, showing that a gradual destruction of life upon a most gigantic scale is going on and by a disease traceable in most cases to a want of free exercise in the open air.

The great mother of disease, is a want of cleanliness and proper ventillation. As far as cleanliness is concerned, a speedy and a cheap remedy can easily be had while there is plenty of water, but as for proper ventillation, it will be very difficult to affect a suitable reform. Landed property is so valuable in our city, that every inch is turned to the most money making advantage, and our public promenade grounds are more stinted in all our cities and villages than such places are in the older countries, probably because America is such a small country. There is one thing to which we would specially advert, viz. the necessity of having large bedrooms. It is no uncommon thing in the construction of our buildings, to set off a place without a single window in it, about the size of a decent box and call it a bedroom because it measures six by seven feet. Sleeping rooms should at least contain one hundred and forty superficial feet and never be less than seven and a half feet high, and have a Rumford ventillator in the window and an Arnott valve in the chimney or an open fire place. All rooms should have a free access to the light of the sun, at any rate to the atmosphere, so that the impure air thrown off by the lungs or candles can pass away and pure air be admitted. Wherever gas is used, there ought to be some method of allowing the carbonic to escape through tubes in the eaves of the buildings, as invented by Ransom Cook.

In the city of Hamburg where so many people live in cellars, it has been remarked by travellers, that blindness and all manner of physical imperfections prevail among the lower classes to a most alarming extent. While the whole world, therefore, is busy inventing and producing for the benefit of man, we must not neglect to provide for the greatest of all earthly blessings, health. Without health there is no enjoyment, and we believe that with proper ventillation and an abundance of good water, no place need be unhealthy.—And with proper places for manly exercises, such as large free parks for our young men to spend an active evening hour, instead of running to ball alleys and billiard rooms, our Anglo-Saxon robustness of constitution would be as fully preserved in our cities as in our villages, and that deterioration of muscular fibre and health be preserved in our people and which now appears in sad contrast with the apparent stalwart frames which the men of *seventy-six* possessed.

Agriculture and Horse Power Machines.

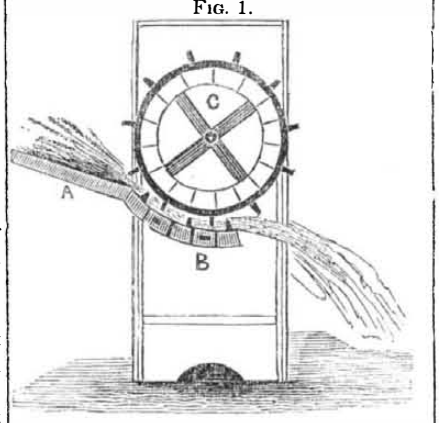
BY. O. BADGER.

PART I.

Agriculture is a most valuable branch of our nation's industry. About four millions of our laboring and business population are engaged in it. In 1845 there were raised seven hundred and nineteen millions nine hundred and nineteen thousand bushels of grain, and in 1847 with fair crops, it is calculated that eighteen hundred millions will be raised, independent of flax and buckwheat. This is an amount of grain so large, that the mind can scarcely grasp it. The price for grain would amount to as much as would buy up some of the petty kingdoms of the old world. What a great and noble branch of industry then is agriculture, yet we are sorry to say that it is much undervalued by our farmers, those in easy circumstances who ought to do something to give consequence to their callings by properly educating their children to honor the profession of their fathers, which instead of doing, they generally engage in some mercantile business or become lawyers and preachers, and ninety-nine out of every hundred fail in realizing their expectations, and become broken down and disappointed men. We believe with Elihu Burritt, the learned Blacksmith, that our great Western States will ere long be the Granary of the world, particularly for England, (they are so now.) With what pride then ought every American to look upon the great agricultural grandeur of our country, because in the hour of suffering we have enough for ourselves and enough to spare and to save from famine distant nations, and who would not be proud to belong to a class of men whose honest industry has furnished them with means to feed the half of Europe and send blessings to Ireland and Scotland. For my own part I, a poor humble individual, feel proud of my country and of the little that I have done in the improvement of a branch of business that is of great importance; and this brings me to the immediate object for which I took up my pen. Agriculture is yet far behind in labor saving machinery, and while the manufacture of cotton and wool has been improved almost to perfection, the farmer has plodded on in nearly the same old track of Adam.

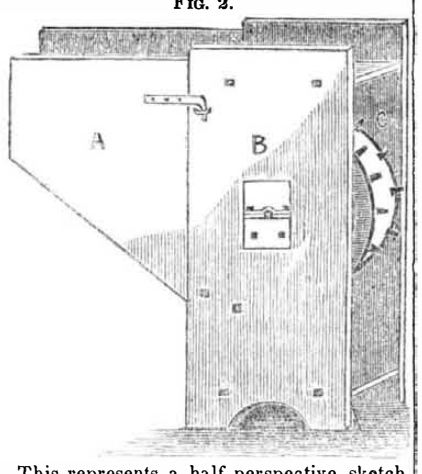
The threshing machines used now are nearly the same in principle as those used twenty years ago. A rotary cylinder with beaters or teeth running within a concave bed having ribs or projections lying horizontal in a frame with just space between the cylinder and concave bed for the straw and grain to pass endwise and by a succession of shocks which it receives in the passage through, the wheat is separated from the straw by the quick rotary motion of the cylinder. Threshing machines as I make them now, are composed of a strong cylinder of wood covered with sheet iron and banded strongly, having a shaft through its centre running horizontally in a frame on journals boxed in as here represented.

Fig. 1.



This is a sectional view of the cylinder, or drum, C, and concave bed with the grain passing through.

Fig. 2.



This represents a half perspective sketch of the Thresher with its plank frame and joint-bolts. A is the hopper, B the frame, and C the cylinder. The machines that I now make are strong and compact, and occupy less space and thresh faster than any other machines of the kind with which I am acquainted. The cylinder and concave bed are armed with strong spikes which are driven in rows through each and clenched inside. The spikes on the cylinder are made of half inch squareiron and tapered towards the end, and pressing through the rows on the concave bed by a quick motion must thresh cleaner and faster than any other way that has been tried. I am now manufacturing one and two horse power threshers and saw machines.

Fly Creek, Oswego Co., N. Y.

An Expensive Strawberry in Embryo.

The Cincinnatti Horticultural Society proposes a premium of $100 to be awarded during any strawberry season heaeafter, for the production of a new seedling strawberry superior in size to any now cultivated in that city. A like sum is also offered for a larger raspberry than any now cultivated.

Railroad Iron.

A writer in the Newark Advertiser estimates that 180,000 tons of Railroad iron will be made in this country during the year ending 30th June, 1848.

Valuable for Hot Climates.

A gentleman in Brooklyn has discovered a plan by which the temperature inside of a dwelling may be reduced twenty or thirty degrees below that of the air outside. He proposes to construct barracks upon this plan for the U. S. Army at Vera Cruz; and by having the soldiers live in a temperature below that in which the yellow fever and other tropical diseases become contagious, he hopes to save hundreds of valuable lives. From his successful experiments, made during the warmest day this season, we are favorably impressed with its utility. The invention can be applied to new dwellings at a very small expense. This is another aid to proper ventilation. We are happy to see attention paid to such important subjects.

The inventor is Mr. Thomas G. Boone, and his method is simple and equally applicable to vessels as well as to buildings,

Increase of the Human Family.

According to published statistics, the population of the United States, since 1790, has doubled in 34 years; the British Islands, in 49½ years; France, besides its loss of over 2,000,000 by wars, &c., in 35 years; the German States, say 50 years; Russia, about 35 years. Average less than 40 years.

Therefore, if the present organization of society, and the advance of arts and civilization, serve to increase the means of subsistence, of course population will increase in at least a corresponding ratio, and double in less time.

It is estimated that there are at this time 1,000,000,000 of people on the globe, which if doubled only five times in 200 years, will make the number 32,000,000,000. So if the whole surface of the earth, including rivers, lakes, swamps, and deserts, contains but 50,000,000 of square miles, or 32,000,000,000 of acres, there will be less than one acre of land for each individual.

Oregon and California.

The St. Joseph's, Missouri, Gazette of the 11th inst., says—Four hundred and thirty-three wagons passed through Independence this spring, destined for Oregon and California. The number that have passed through this place added to the above will increase the number to upwards of 1300 wagons, now on their way to Oregon. Averaging five persons to each wagon, you have 6500 persons large and small, now on their way to Oregon and California. We heard yesterday that near five hundred Mormons had left their encampment at the Bluffs, with the intention of settling in and near this place.

Ancient Manuscript.

A Greek manuscript of the sixth century has been discovered at Athens, which besides a treatise on Byzantine painting, is said to contain an account of the daguereotype process, and hints for the manufacture of gun cotton. In this manuscript the art of producing photographic pictures is called "Heliotype."

Such is the story going the rounds of the newspapers. Had it been from Alabama instead of Athens we could have believed it the more readily.

Churches.

There are in Cincinnati, just now, 70 church buildings finished, and six more in progress.

To New Subscribers.

Those subscribing to the Scientific American will be furnished, if desired, with all the back numbers of the present volume. Bound together at the end of the year, they will form a handsome and valuable work.

THE
SCIENTIFIC AMERICAN.

Persons wishing to subscribe for this paper, have only to enclose the amount in a letter directed (post paid) to

MUNN & COMPANY,

Publishers of the Scientific American, New York City

Terms.—$2 a year; ONE DOLLAR IN ADVANCE—the remainder in 6 months.

Postmasters are respectfully requested to receive subscriptions for this Paper, to whom a discount of 25 per cent will be allowed.

Any person sending us 4 subscribers for 6 months, shall receive a copy of the paper for the same length of time

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The History of Printing.

(*Concluded from No.* 41.)

The press was at the commencement a very rude machine. The first change in their make was wrought by an ingenious printer of Amsterdam, named Blaew, who had been brought up as a carpenter, but having become acquainted with Tycho Brahe, he turned his attention to the making of astronomical and mathematical instruments, and he published an Atlas in three volumes folio, in the execution of which he engaged all the celebrated geographers of his time. Having discovered many imperfections in the printing-press, he studied to remedy them, and he succeeded in making many improvements. He caused nine to be made after his plan, and named them after the Muses. Presses of his structure soon became general in the Low Countries, from whence, after a bigotted attachment to the clumsy old ones, they were used by the printers there. It was not until the commencement of the present century that any further improvements of consequence were introduced. The Stanhope and the Columbian presses are well known as being the very successful result of efforts to improve the mechanism of printing, and these hand presses have perhaps reached the ultimatum of the excellence of which they are capable. The first of those we have just named, was the invention belongs to his lordship, who declined to take out a patent for it, and the manufacture of presses upon this plan became common. Its superiority consisted in this, that by the adjustment of the screw and lever a single pull was sufficient to take off an impression, but on the old system two separate efforts were required. Not more than 250 impressions however per hour, could be worked off with the most improved press; and as the impression was only on one side, it followed that only 125 printed sheets could be executed in that time. In 1814, steam power was first applied to the process of printing, and the machine has now been brought to such perfection that upwards of four thousand sheets can be printed in an hour, this being the rate at which the "Sun" newspaper is printed daily.

Before we can print, we must have types, and type-founding is generally a separate trade. The different sizes in which the types are cast, are termed bodies, and there are nineteen of them. About a hundred pounds weight of type is considered a moderate sized fount. The matrix is of copper impressed by a steel punch, and it is placed in a steel mould the size of the shank of the type. The mould is then held in the founder's left hand whilst he pours the moulten metal out of a ladle into it, with his right. The mould is quickly opened, the type thrown out, and the workman repeats the process. In this way from 400 to 550 types can be cast per hour. Towards the end of the sixteenth century a printer at Leyden, first used stereotype printing in producing a quarto edition of the bible. William Ged, an English goldsmith, was the first who used the process in Britain, about 1725, and having entered into partnership with two other persons, they obtained a privilege from the University of Cambridge, for printing bibles. Some quarrel unluckily broke out, and one of the partners maliciously injured the works. The bibles printed after this were so full of errors that the king prohibited them to carry on their operations further. The mode of forming stereotype plates is this; after the type has been composed and set in form as if it was to be printed from, it is carefully cleaned and then oiled. A cast is then taken from it in plaster of Paris, and then baked, When hard enough, it is placed in a box or frame, and a quantity of moulten metal is then poured over the whole. The plaster is then removed and the stereotype plate is produced, from which almost any number of copies can be taken as they are wanted. When a large number of copies are required, and particularly where simultaneous publication at several places, is necessary, the stereotype process is generally adopted. The early printers were usually their own publishers; and publishers now-a-days are frequently their own printers, especially when periodical works are in question.

A man in Somerset county, Maine, advertises for two hundred girls to work in a factory in Massachusetts.

Fog or Mist.

The phenomenon of Fog or Mist occurs at all seasons, and it appears always under the peculiar circumstances explained by Sir Humphrey Davy. His theory is, that radiation of vapor from land and water sends it up until it meets with a cold stratum of air, which condenses it in the form of mist—which naturally gravitates towards the surface. When the radiation is weak, the mist seems to lie upon the ground; but when it is more powerful, the stratum of mist may be seen elevated a few feet above the ground. Mist, too, may be seen to continue longer over the water than the land, owing to the slower radiation of vapor from water; and it is generally seen in the hollowest portions of ground, on account of the cold air, as it descends from the surrounding rising ground and mixes with the air in the hollow, diminishing its capacity for moisture.

Mist varies in its character according to its electric state, if negatively affected, it deposits its vapor more quickly, forming a heavy sort of dew, and wetting everything like rain; but if positively, it continues to exist as fog, and retains the vapor in the state in which it has not the property of wetting like the other.

The fogs in hollows constitute the true stratus cloud. We see vapor at a distance in the atmosphere, and call it cloud; but when it sinks to the earth or will not rise, and we are immersed in it we call it mist or fog. When immersed in a cloud on a mountain, we say we are in a mist; but the same mist will be seen by a spectator, at a distance in the valley, as a beautiful cirro stratus resting on the mountain.

The magnifying power of mist is a well-known optical illusion. Its concealing and mystifying effects may have been observed by every one; and its causing distant sounds to be heard as if near at hand may also have been noticed by many.

Singular Magnetic Attraction of Mud.

The smaller lakes of America, whose wild and solitary shores attract the tourist, have some singular physical peculiarities. One of the early explorers of the northern regions, Sir A. Mackenzie was the first to notice the attractive power of the mud at the bottom, which is sometimes so great that boats can with difficulty proceed along the surface. This extraordinary fact is thus stated:

"At the portage or carrying place of Matrees, on Rose Lake, the water is only three or four feet deep, and the bottom is muddy. I have often plunged into it a pole twelve feet long, with as much ease as if I merely plunged it into the water. Nevertheless this mud has a sort of magnetical effect on the boats, which is such that the paddles can with difficulty urge them on. This effect is not perceptible on the south side of the lake, where the water is deep, but it is more and more sensible as you approach the opposite shore. I have been assured that loaded boats have often been in danger of sinking, and could only be extricated by being towed by lighter boats. As for myself I have never been in danger of foundering; but I have several times had great difficulty in passing the spot with six stout rowers, whose utmost efforts could scarcely overcome the attraction of the mud. A similar phenomenon is observed on the lake Sagina, where it is with difficulty that a loaded boat can be made to advance, but fortunately the spot is only 400 yards over."

This statement has received confirmation from the experience of Capt. Back and others, during the arctic land expeditions. A part of Lake Huron, likewise in the same district, appears to be the centre of a remarkable electrical attraction. There is a bay in the lake, over which the atmosphere is constantly charged with electric fluid; and it is affirmed that no person ever traversed it without hearing peals of thunder.

Silver Mines.

The silver mines in Konsberg, Norway, have produced, during the first quarter of the present year, 10,700 marcs of virgin silver, a quantity exceeding by five-twelfths the produce of the corresponding quarter of 1846. The 10,700 marcs were put up at auction, and bought by the National Bank of Denmark for a sum equivalant to 553,191 fr.

Dignity of Labor.

In early life David kept his father's sheep; his life was a life of industry; and though foolish men think it degrading to perform any useful labor, yet in the eyes of wise men industry is truly honorable, and the most useful man is the happiest. A life of labor is man's natural condition, and most favorable to bodily health and mental vigor. Bishop Hall says, "sweet is the destiny of all trades, whether of the brow or of the mind. God never allowed any man to do nothing." From the ranks of industry have the world's greatest men been taken. Rome was more than once saved by a man who was sent from the plough. Moses had been keeping sheep forty years before he came forth as the deliverer of Israel. Jesus Christ himself, during the early part of his life, worked as a carpenter.—His apostles were chosen from amongst the hardy and laborious fishermen. From whence I infer that when God has any work to perform, he selects as his instruments those who by their previous occupation had acquired habits of industry, skill and perseverence; and that in every department of society, they are the most honorable who earn their living by their own labor.

How abuses have their Origin.

A late Paris journal relates the following anecdote as an example of the manner in which abuses grow up in governments.

Some twenty years since a staff officer in the French army was appointed to the command of a fortress in Alsace. He began by making himself acquainted with all the details of the service to which he was called In one his inspections he found a soldier standing as sentinel by a worm-eaten stockade lying about in fragments, which, for no purpose that could be assigned, crossed a court, and divided it in two parts. The commandant inquired of the major concerning the necessity of a sentinel in this place, and was answered that he was standing there in conformity with long usage, that the previous commanders of the place had always found a sentinel at that post, and had kept one there. The reason was not received as satisfactory, and an investigation was ordered; old records were searched, old files of papers and day books examined; and at length it was discovered that thirty-five years before, the stockade, which at that time had its use, was repaired and painted. The sentinel was stationed by it to prevent any person from touching the fresh paint.—Since that time it is estimated by the French print that in thirty-five years, sixty-five thousand men had taken their turns in keeping watch over the fresh paint.

All of A Name.

There is now in Canada, a settlement of the Glengary Highlanders, who emigrated there some fifty years ago, with Bishop Mc. Donald, who have preserved their religion, language, habits, &c., unadulterated. About one thousand eight hundred occupied the original settlement, and what is more singular their names are all Mc Donald. An instance is mentioned where a cause was tried in which not only the names of both plaintiff and defendant were Mc'Donald, but each had selected a counsel of that name; the twelve jurymen were all Mc,Donald, and so were all the witnesses! The four members of Parliament from the county in which this settlement is situated, bear the same name. The Sheriff is a Mc'Donald, and so are their vicar general, and most of the priests and their bishop.

Nature adapted to the wants of Man.

The shores of the lake Titicaca, in Peru, 12,700 feet above the level of the sea, are enclosed by a thick forest of a beautiful rush which plays an important part in the economy of the surrounding district Indeed, the people of that country would live in great wretchedness if nature had not bestowed on it these plants, for it lies far above the limit of trees, and only a few bushes grow in its neighborhood These rushes supply the natives not only with fuel, covering for their huts, and with matting, but they supply material for the construction of their rude balsas or boats, which are merely rush-woven, as are also the sails that waft them across the waters.

Manufactures of Providence, Rhode Island.

There are in that city four bleaching and calendering establishments, bleaching 18 tons of cotton per day, including printing cloths, employing nearly 500 hands.

There are printed every week 13,000 pieces of cloth, 390,000 yards, employing 500 hands.

Four cotton mills of 34,000 spindles, make 58,000 yards of cloth per week, employing 730 hands.

Two woollen mills manufacture 375,000 yards of satinets and jeans, consuming 126,000 pounds of wool annually—employ 120 hands.

Two screw factories for cutting wood screws so called, from one-eighth to four inches long, one eighth to three eights of an inch diameter; manufacture annually 800 tons of iron, employ 475 hands.

Fourteen furnaces, consuming 5,000 tons pig iron for machinery, &c., and turn out 14,000 parlor, cooking, and counting room stoves, and 550 ploughs—employ from 250 to 275 hands.

Three steam engine establishments, for building steam engines—employ 240 hands.

One rolling mill employs 275 hands, makes 30 tons railroad iron and three tons of wire per day from pigs and blooms.

One edge tool, nut and washer factory, manufacture annually 31,200 dozen plane irons, 100 tons hinges, 300 tons bolts, 200 tons nuts, 100 tons pick-axes and other forges—employ 95 hands.

Three India rubber shoe factories make annually from 180,000 to 200,000 pair of shoes—employ 200 hands.

One factory for manufacturing shoe ties, corset lacing and braid—employs 57 hands, and consumes 1200 pounds of cotton per week.

Four planing machines plane 10,000,000 feet of lumber annually; make 75,000 boxes for goods, candles, and soap, and 100,000 sash lights—employ 400 hands,

Eight engraving shops for engraving copper rolls for printing cloths—employ 80 hands.

Two butt hinge factories employ 30 hands, and manufacture 100,000 dozen hinges annually.

There are in the city 5 brass foundries and 17 tin and sheet iron shops.

1200 men are employed in making cotton and woolen machinery.

500 house carpenters and 350 stone and brick masons here find employment.

There are in operation 65 steam engines.

There is paid annually for labour alone in the manufacture of jewelry, rising $100,000.

There were erected during the year 1846, 517 buildings, 333 of which were dwelling houses.

A Great Work.

The Kilsley Tunnel on the London and Birmingham Railway is about 2,423 yards long, of brickwork 27 inches thick, built in Roman or metallic cement. In the course of the work a bed of sand and water was encountered 450 yards in length, to drain which shafts had to be sunk a little distance out of the line of the tunnel. The pumping was continued nearly nine months before the sand was sufficiently dry to admit of tunnelling, and during a considerable portion of the time 2000 gallons of water per minute were thrown out by the pumps. Thirty millions of bricks were used in the construction of the work; the deepest ventilating shaft using up one million, its weight being 4,034 tons. These large ventilating shafts are 60 feet in diameter and 132 feet deep; their walls are perpendicular and 3 feet thick, laid in Roman cement. The cost of this tunnel was $650 per yard. The entire railway from London to Birmingham cost $30,000,000, requiring the enormous income of $1,500,000 per annum to pay interest at 5 per cent, and one-third more, or $500,000 per annum, to defray wear and tear, and other expenses of its yearly operations, and yet with all this outlay it is one of the most productive railways in Britain.

Money Found.

A large sum of money has been found by U. S. Soldiers in a secluded vault in the castle of San Juan de Ulloa. It is not known whether it belonged to the Mexican government or some individual.

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TO CORRESPONDENTS.

D. G. of Mass."—Your submerged paddle is far as we can learn, is new, but there is too much friction in its complex arrangements, and there would be too much resistance to the moveable paddles.

" E. M. of Vermont."—You must petition the Commissioner of Patents on the ground of a withdrawal of application, and the fee may be returned. See No. 6 of the Scientific American.

" J. S. of Ohio."—We have received your communication and model, and would state that your plan is not new here,—a superior window spring on the same principle having been invented some time ago in Massachusetts, but with yourself, it is undoubtedly original

J. M. M. of N Y."—We have seen a Rotary Engine capable of reversing, but we have never seen any rotary in operation yet, that has answered the expectations formed of it by the inventor.

" J. A. of T."—Your somewhat amusing and good natured letter, e'en clears the brow of half its care. We know of nothing like your pocket, and all the resemblance to it, is a patent letter box spring lately invented in London. We may give an account of it in some future number. In reference to the opinion we *expressed*, there are instances, when we must

" gently scan
Our fellow man."

Youth wants encouragement publicly, and not censure; we think, however, that we mixed, " with a guiding hand," enough to disapprove of the plan.

" S. P. H. of N. Y."—We have received your communication, with the truss sent for examination. Terms in advance always.

" J. W. J. of Michigan."—We have sent you the paper referred to in our last number.

" J. W. of N. Y."—Your engraving with the explanation of the light and manner of operation, will certainly appear next week.

" L. C. of Md."—We have received your communication and must state that we have serious objections to your self acting wheel, as you have described it. You will find that the resistance to be overcome by the rollers will render them of no advantage whatever.—In any wheel moving parallel with permanent weights on the periphery, the resistance is always greater than the motive from them. Exper iment and you will we have no doubt, be satisfied of this.

" E. D. C. of Ct."—We shall attend to your request soon.

" T. D. S. of Mass."—We have received your communication, and will give it due attention. A mass of business is the only cause of delay.

" J. S. of O."—We think your improvement in the spinning wheel very good, but as the hand wheel is but little used at the present day, we would not advise you to incur the expense of getting it patented. We have credited the amount you sent to apply on your subscription.

" O. B. of N. Y."—Those cuts are subject to your order.

" W. W. V. of N. Y."—We have distribu those papers as you desired.

" N. H. of N. Y."—The article you sent us is received, but as yet we have been unable to find a person who could define its use or inform us for what purpose it was intended.—Please explain.

Ploughing by Steam.

It is proposed in the London Agricultural Gazette to adopt ploughing by steam instead of horse power, considering it a more docile and less costly power than either man or horse. Every hundred acres of ploughing involves the passing over 1000 linear miles, by 500 consumers of food. They calculate the saving by steam 'on every ploughing,' at $1 per acre, or $100,000,000 on as many acres.

The editor never saw the Maple Flats, that's certain, nor a Gen. Taylor antibacking locomotive.

Purchase of a Railroad.

Messrs. Henshaw & Co. of Boston, have purchased the Portsmouth and Roanoke Railroad, Virginia.

Remarkable Petrifying Spring.

At Clermont, in the south of France, a place where mineral waters abound, there is a spring which possesses the power of petrifaction in a very extraordinary degree. Some years ago, when a learned professor by the name of Blanqui, visited that quarter, there was an ox undergoing the process of transformation; and although the animal had begun to sit, or stand, for his statue only twelve months before, one-half of him was already made into a stone monument! Several horses are said to be seen turned into monuments of themselves, and ornamenting, in the capacity of statues, the fields where they once pastured; while a collection of other quadrupeds, and of birds, fruits and flowers, bear ample testimony to the formidable powers of this truly magic spring. There are many petrifying springs in this country, but none whose powers at all approach that of Clermont. Even the renowned hot springs of Furnass must yield to it, although there also, the process is carried on to a great extent. It may be mentioned, that the district around Clermont is mountainous and volcanic, and that the tufa and ashes thrown out by the eruptions which occurred antecedent to the historical era contain an immense variety of the bones of animals of the quadruped class, as well as birds Cuvier has described many of those remains as belonging to new or extinct species of the mastadon, elephant, hippopotamus, and so on.

Mechanics' Bell.

The mechanics of Norfolk, Va. had a celebration on Monday, the 28th ult., on the occasion of raising a bell, intended to give notice of the times at which the mechanic and laborer are to commence and cease from their daily labor, under the ten hour system. The mechanics of the navy and town of Portsmouth, united with those of Norfolk and formed a very handsome and well conducted procession.

Fair of the American Institute.

The twentieth annual Fair of this establishment, will be held this year, at Castle Garden in this city, one of the largest amphitheatres in the world. It will open to the public on Tuesday, Oct. 5th, and continue open upwards of a fortnight. Models, machinery, and choice fabrics of skill and ingenuity from American workshops will be received for exhibition and competition during October the 2d, 3d and 4th. Cattle shows, Agricultural and Horticultural exhibitions, Plowing and Spading Matches, and the National Convention of Gardeners, Farmers, &c. will occupy part of the time—and gold and silver medals, diplomas, books, cups, &c. be bes owed under the inspection and on the award of the most careful judges.

A CARD.

We having purchased the entire interest of the Mechanics Journal, heretofore published in Albany, would request that all new subscribers forwarding names or money for the paper, would address their communications to this office MUNN & CO.

New York, June 25th, 1847.

Patrons of the Mechanics' Journal.

All those who are indebted to the former publishers of this paper, are respectfully requested to make immediate payment for the same to Joel Munsell of Albany, Robert Macfarlane of this city, or to the publishers of the Scientific American. Those subscribers who have paid for a part of the volume of the Journal, are hereby informed that when the time is up for which they have paid their papers will be stopped, unless they remit again.—Many will expire with the present number.

BOOKS! BOOKS!!

☞We would inform those who are desirous of procuring **MECHANICAL AND SCIENTIFIC BOOKS,** that we have made arrangements whereby we can furnish almost any work, at the lowes prices. We have Scribner's Mechanic, and Scholfield's Geometry, constantly on hand.

Price of Scribner's Mechanic, tuck & gilt edge $1,6(
" " plain, bound in leather, $1,1
" of Scholfield's Geometry (per vol) $1,5

☞The trade furnished at a discount.

MUNN & CO., Publishers,
F6 128 Fulton street, N. Y., 2d

ADVERTISEMENTS.

☞ This paper circulates in every State in the Union, and is seen principally by mechanics and manufacturers. Hence it may be considered the best medium of advertising, for those who import or manufacture machinery, mechanics tools, or such wares and materials as are generally used by those classes. The few advertisements in this paper are regarded with much more attention than those in closely printed dailies.

Advertisements are inserted in this paper at the following rates:

One square, of eight lines one insertion,	$ 0 50
" " " " two do.,	75
" " " " three do.,	1 00
" " " " one month,	1 25
" " " " three do.,	3 75
" " " " six do.,	7 50
" " " " twelve do.,	15 00

TERMS:—CASH IN ADVANCE.

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FOR THE SCIENTIFIC AMERICAN.

New York City,	Geo. Dexter.
" "	Wm. Taylor & Co.
Boston,	Messrs. Hotchkiss & Co.
Philadelphia,	Stokes & Brother.
Boston,	Jordon & Wiley.

LOCAL AGENTS.

Albany,	Peter Cook.
Baltimore, Md.,	S. Sands.
Cabotville, Mass.,	E. F. Brown.
Concord, N. H.	Rufus Merrell.
Fall River, Mass.	Pope & Chace.
Hartford, Ct.,	E. H. Bowers.
Lynn, Mass,	J. E. F. Marsh.
Middletown, Ct.,	Wm. Woodward.
Norwich, Ct.,	Safford & Parks.
New Haven, Ct.,	E. Downes.
New Bedford, Mass.,	Robinson, Parsons & Co.
Newark, N. J.,	J. L. Agens.
Newark, N. J	Robert Kashaw.
Providence, R. I.,	H. & J. S. Rowe.
Rochester, N. Y.	D M. Dewey.
Springfield, Mass,	Wm. B. Brocket.
Salem, Mass.,	L. Chandler.
Saco, Me.,	Isaac Crookee.
Troy, N. Y.,	A. Smith.
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Williamsburgh,	J. C. Gander.
Dover, N. H.	D. L. Norris.

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Clark Selleck, Squire Selleck.

Persons residing in the city or Brooklyn, can have the paper left at their residences regularly, by sending their address to the office, 128 Fulton st., 2d floor.

SMITH'S
Improved Electric Machines.

☞We have received a new lot of Smith's Magnetic Machines, which far surpass any we have ever before offered to the public. They are put up in much neater shape and better adapted to medical purposes than any that have ever been sold in this city previous to the recent improvements in these machines.

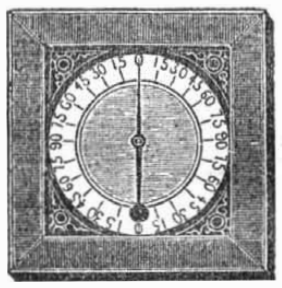
For particulars relative to the wonderful cures performed by these truly wonderful machines, we would refer you to the inventor, who has original letters from those cured, that he would be pleased to show at his office.

Price $12, neatly put up in mahogany cases, with a book of explanation to accompany.

Orders from any part of the United States, promptly attended to. Address

j3 tf MUNN & CO. (post paid) New York.

Plumb and Level Indicator.



THE UTILITY of this invention so far exceeds the expectation of the inventor that he has been induced to engage in the manufacture of them to a large extent It is understood from the engraving, that the proper position of the instrument is vertical, and that the weight of the ball will keep the index in a perpendicular position, so that either the bottom or side of the frame being placed against a horizontal, vertical or oblique surface, the index will show its inclination, (if there be any) in degrees.

Besides its utility, the Indicator possesses a share of elegance, consisting of a neat mahogany frame 9 inches square and glass, encasing a lithographic dial with an appropriate picture in the centre, and the movement is so free that a variation of one fourth of a degree is indicated. They may be sent to any part of the U. S by Express.

For sale, wholesale and retail, at this office. Address MUNN & CO (post paid) ☞Price $1 single. A discount to dealers. m13 tf

To Builders and Hardware Dealers.

☞We would inform those who deal or have occasion to use DOOR LOCKS or LATCHES in the construction of buildings, that we have just received a large lot of Mortice Locks and Latches, which we can furnish at a less price than the original cost to manufacture them. They are of a beautiful pattern and some of the Locks of an entirely new style. They may be had in any quantity, by application at this office. MUNN & CO. 128 Fulton st.

AMERICAN HARDWARE.

THE SUBSCRIBER having been engaged in selling American Hardware on commission for 7 ears, solicits consignments from manufacturers, and will refer to those who have employed him the above number of years. SAMUEL C. HILLS,
m8 3m* 189 Water st.

A LITERARY AND FAMILY PAPER.
THE YANKEE BLADE.

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In compliance with the repeated requests of several of our correspondents, we have prepared the following article on the

Manufacture of Lenses.

The glasses intended for optical purposes, being spherically ground, are called lenses; and are used either as simple magnifiers and spectacles, or for telescopes and microscopes. The curvature is always a portion of a sphere, and either convex or concave. This form ensures the convergence or divergence of the rays of light that pass through them, as the polishing does the brightness of the image.

The grinding of the lenses is performed in brass moulds, either concave or convex, formed to the same curvature as that desired in the lenses; and may be worked either by hand or by machinery. A gauge is first cut out of brass or copper plate to suit the curvature of the lens, the circular arc being traced by a pair of compasses. In this way both a convex and a concave circular guage are obtained. To these guages the brass moulds are turned. Sometimes, also, lead moulds are used. After the two moulds are made, they are ground face to face with fine emery.

The piece of glass is now roughed into a circular form by a pair of pincers, leaving it little larger than the finished lens ought to be, and then smoothed round upon the stone disc, or in an old mould with emery and water, and is next made fast to a holdfast. This consists of a round brass plate having a screw on its back; and is somewhat smaller in diameter than the lens, and two thirds as thick. This is turned concave upon the lathe, and then attached to the piece of glass by drops of pitch applied to several points of its surface, taking care, while the pitch is warm, that the centre of the glass coincides with the centre of the brass plate. This serves not merely as a holdfast, by enabling a person to seize its edge with the fingers, but it prevents the glass from bending by the necessary pressure in grinding.

The glass must now be ground with coarse emery upon its appropriate mould, whether convex or concave, the emery being all the time kept moist with water. To prevent the heat of the hand from effecting the glass, a rod for holding the brass plate is screwed to its back. For every six turns of circular motion, it must recieve two or three rubs across the diameter in different directions, and so on alternately. The middle point of the glass must never pass beyond the edge of the mould, nor should strong pressure at any time be applied. Whenever the glass has assumed the shape of the mould, and touches it in every point, the course emery must be washed away, finer be substituted in its place, and the grinding be continued as before, till all the scratches disappear, and a uniform dead surface be produced. A commencement of polishing is now to be given with pummice stone powder. During all this time the convex mould should be occasionally worked in the concave in order that both may preserve their correspondence of shape between them. After the one surface has been thus finished, the glass must be turned over and treated in the same way upon the other side.

Both surfaces are now to be polished. With this view equal parts of pitch and rosin must be melted together, and strained through a cloth to separate all impurities. The concave mould is next to be heated, and covered with that mixture in a fluid state to the thickness uniformly of one quarter of an inch. The cold convex mould is now to be pressed down into the yielding pitch, its surface being quite clean and dry, in order to give the pitch the exact form of the ground lens; and both are to be plunged into cold water till they be chilled. The pitch impression is now the mould upon which the glass is to be polished, according to the methods above described, with finely washed colcothar and water, till the surface becomes perf ctly clear and brilliant. To prevent the pitch from changing its figure by the friction, cross lines must be cut in it about half an inch asunder, and one-twelfth of an inch broad and deep. These grooves remove all the superfluous parts of the polishing powder, and tend to preserve the polishing surface of the pitch clean and unaltered. No additional colcothar after the first is required in this part of the process; but only a drop of water from time to time. The pitch gets warm as the polishing advances, and renders the friction more laborious from the adhesion between the surfaces. No interruption must now be suffered in the work, nor must either water or colcothar be added; but should the pitch become too adhesive, it must be merely breathed upon till the polish be complete. The nearer the lens is brought to a true and fine surface in the first grinding, the better and more easy does the polishing become. It should never be submitted to this process with any scratches perceptible in it, even when examined by a magnifier.

As to small lenses and spectacle eyes, several are ground and polished together in a mould about six inches in diameter, made fast to a stiffening plate of brass or iron of a shape corresponding with the mould. The pieces of glass are affixed by means of drops of pitch, as above described, to the mould, close to each other, and are then all treated as if they formed but one large lens. Plane glasses are ground upon a surface of pitch rendered plane by the pressure of a piece of plate glass upon it in its softened state.

THE ART OF PAINTING.

(*Continued from No* 41.)

LANDSCAPE PAINTING ON WALLS OF ROOMS.

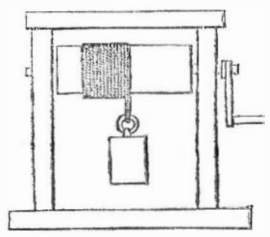
In a former number we directed that the walls above the horizon line should be painted with a sky-blue, composed of white and celestial blue. It may be here remarked, however, that mineral blue, makes a more perfect imitation of the sky than any other, though more expensive than either celestial or mineral blue. But it sometimes may occur, when the walls are new and not thoroughly dry, that no other blue than indigo (finely ground,) will stand firm and unaffected by the fresh lime of the walls. Having represented the rising clouds as before directed, add a little blue-black (a mixture of two-parts blue to one of black) to the sky blue, so as to deepen the color one or two shades from sky blue, and with it paint such parts as are designed for water, drawing the surface of the open ocean, carefully to the horizon line. Paint the most distant mountains, capes and highlands—those of the fifth distance, sky blue, and at the same time shade them slightly on the side opposite the principal light of the room, with blue shade (a mixture of blue and white, with a slight tinge of rose pink) carefully blending the same with the sky blue, while free or moist. The bases of the mountains may be also shaded; and the tops of the mountains on the sides towards the light may be heightened with white or pale pink color. Paint the grounds, capes, islands and high lands of the fourth distance with distant green, (a compound of about twelve parts of sky blue to one of chrome green) shade them with blue shade and heighten them with sulphur yellow, (a mixture of six parts white to one of chrome yellow.) We may here observe that for the more convenient execution of this important part of the work, some peculiar tools are required, which cannot be procured ready made and prepared; wherefore we here give a description thereof. A common sash brush, about half an inch in diameter, is so flattened that the end thereof is reduced nearly to a sharp edge by having a small piece of wood, one inch long, lashed to each side of the brush with twine, as here represented.

A few brushes thus prepared are indispensible in painting, shading, and heightening the distant hills, capes and islands, as well as the trees and rocks of the first distance, and are designated by the name of cutting brushes.—Another kind, a size larger, and not made so thin, but reduced to about a quarter of an inch in thickness at the end, is termed a bushing brush, and is generally used in the formation of the tops of trees in the third and fourth distances Another yet larger kind of brushes are similarly flattened, and denominated shading brushes, and are generally employed in applying and shading the various ground colors in the first and second distances. The ground color for the second and third distances generally consists of forest green, (a mixture of equal quantities of chrome green and white) occasionally reduced with sky-blue.—The hills and swells of land are shaded with blue black, and heightened with lemon yellow, (chrome yellow and white, equal,) or Paris green, Venetian red or yellow ochre are also occasionally blended with the ground color of the second distance. We have several times mentioned the use of chrome green, which is a common color at the shops; but a mixture of bright lemon-colored chrome yellow with slip blue, is both cheaper and brighter than the ordinary chrome green. There is another cheap color called Brunswick green, which is preferable to either for the second distance ground; but as worthless compounds are often sold under this name it requires some knowledge of colors in selecting it. The first distance or foregronnd is first painted with chrome green, sharply heightened with lemon yellow and Paris green; or painted with burnt umber, and heightened with horizon red; in either case deeply shaded with black.

(*To be continued.*)

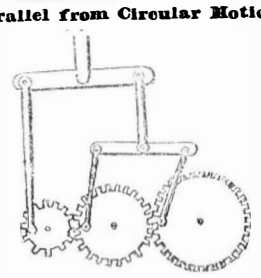
MECHANICAL MOVEMENTS.

The Common Windlass.



The above cut represents the common windlass so easily apprehended by the bucket and roller for drawing water from a well. It is perhaps the most simple method of exhibiting transverse motion. It may now appear obsolete, but great things have been accomplished by this simple apparatus. It was the only machine used for drawing up coals in what were called the criepy or shallow British pits. and sometimes with an iron bucket to draw up any excess of water, by a hole being dug at the corner of the pit bottom for the bucket to dip in.

Parallel from Circular Motion.



This simple connection and combination of three ratchet wheels by the shackle-bars and perpendicular shaft, will be easily discerned to be one of the many methods for communicating parallel motion from a circular as by a water wheel driving first the three ratchet wheels and then from them the parallel motion given to the shaft, or contrary, as will be seen by its full application in Cartwright's steam engine, (see Galloway's History.) In a more important point of view this combination exhibits the relative speed of wheels.

RECEIPTS.

DIAMOND CEMENT.

This cement is composed of isinglass softened in water, then dissolved in alcohol, to which a little gum resin is then added. When applied it must be gently heated to liquify it, and it should be kept for use in a sealed bottle. It is used for uniting china, glass, &c., and is generally supposed to be a secret. It is the same which the jewellers in Turkey employ in glueing ornamental stones to various kinds of trinkets.

CEMENT FOR MENDING STONE STEPS

Mix twenty parts of clean river sand, two of litharge and one of quick lime into a thin putty with linseed oil. After having been applied some time it becomes as hard as stone. Something similar to this has been used to coat over brick walls and is called mastic.

[We would here remark, that all receipts published from time to time in this paper, can be relied upon as correct, as none are ever admitted in its columns till they have been amply tested.—Ed.

Good Coffee.

Among the greatest rarities of the times, good coffee is one of the rarest. The error consists, 1st, in not selecting good coffee. 2d, in roasting it either too much or too little. 3d, in boiling the coffee so long as to extract the bitter principle which it contains. 4th, in using so little of the article as to obtain nothing better than slops 5th, in suffering it to stand so long in a tin pot as to abstract the metal, which is dissolved by the acid in the coffee and thus forms a salt of tin, and 6th, in preparing it with poor milk instead of cream.

If our mothers and wives will guard against these grevious mistakes, coffee would be more palatable and more healthy.

Every housewife ought to roast and manufacture her own coffee. To grind it very fine and scald it instead of boiling, all the bitter particles, or *gallic* principle, is avoided in the liquid. We are told, that if chesnuts are roasted and ground with the coffee beans, in the proportion of one part chesnuts to six of coffee, that an exceeding fine flavor, like Mocha, is imparted. We have tasted this beverage and admired its flavor, and the mode of mixture was given unto us by a Parisian *connoiseur*.

Singular Phenomenon.

The Belknap, N. H. Gazette states that the water of Lake Winnipisiogee, at Alton, suddenly receded from the shore and moved up towards the head of the Lake, and then came tumbling back flowing to an unusual height. This was repeated six times, when the water was as placid as before.

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